Statement of Work
Project Name: Design Study of EUV Multilayer Coatings for EUNIS
Date: August 12, 2014

DESCRIPTION OF WORK:
The Extreme ultraviolet Normal Incidence Spectrograph (EUNIS) sounding rocket mission requires a design study to optimize design parameters and calibrate deposition rates for multilayer coatings to provide high normal-incidence reflectivity in the EUV wavelength range 9-14 nm. Specifically, an experimental investigation of the performance of both Pd/B_4C and Pd/Y/B_4C multilayer coatings is required, with investigation of both dual-stack and aperiodic coating designs that operate near normal incidence at wavelengths of 9-14 nm, and that meet the performance requirements of the EUNIS instrument: either >5% from 8.9-11.2 nm or the combination of >7% from 9.1-9.6 nm and >7% from 12.2-13.6 nm. Test coatings following the designs that are developed must be deposited on substrates, and the EUV reflectance from 9-14 nm and mechanical stress of the coating must be measured. The deliverable is a comprehensive report summarizing the findings, including the measured performance of dual-stack and aperiodic designs using Pd/B_4C and Pd/Y/B_4C.

DELIVERABLES:
-A report including design parameters, stress measurements, and normal-incidence EUV reflectivity measurements from 9-14 nm for dual-stack and aperiodic Pd/B_4C and Pd/Y/B_4C multilayer coatings.

SAFETY AND CERTIFICATION REQUIREMENTS:
List all safety and certification training required to perform this project to include GSFC course name, course number, and how often personnel working on the project must update their training.

Course Name	*Course Number*	*Training Timeframe*

QA REQUIREMENTS: none needed (this is a design study)

ITAR AND EXPORT CONTROL: n/a

SECURITY REQUIREMENTS: none

ORGANIZATIONAL CONFLICT OF INTEREST: none
(Describe any COI that might that will be encountered during the project)

TRAVEL REQUIREMENTS: none
(Specify if travel is required, dates, number of persons, number of nights)

PERIOD OF PERFORMANCE: – December 30, 2014
(Specify project beginning and end dates)

PLACE OF PERFORMANCE: Test coatings will be deposited on substrates, and the EUV normal-incidence reflectivity will be measured at the facilities of Reflective X-ray Optics, New York, NY
(Indicate where the work will be performed)

PROJECT LEADERSHIP:
(List project leads, email addresses, and phone numbers)
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